

## ABSTRACT OF THE DISCLOSURE

It is an object of the present invention to provide a compression ignition internal combustion engine capable of making compatible an increase in compression self-ignition operating area with an optimum output torque control in the operating area and also smoothly switching between a self-ignition combustion and a spark ignition combustion. The compression ignition internal combustion engine operates by switching between the spark ignition combustion using an ignition device and the compression ignition combustion which self-ignites a mixture by piston compression. Variable valve mechanisms vary at least one of the valve timings and valve lifts of an intake valve and an exhaust valve. Intake air is regulated to vary the amount of air intake into a combustion chamber on the upstream side of a combustion chamber inlet of the compression ignition internal combustion engine. The variable valve mechanisms and the intake air regulation are controlled during the compression ignition combustion so as to perform the compression ignition combustion.